

# Comparisons of Job Characteristics

**Focus Occupation:** [Computer Software Engineers, Systems Software \(15-1032\)](#)  
**Associated Occupation:** [Computer and Information Systems Managers \(11-3021\)](#)

[Compare Knowledge](#)  
[Compare Skills](#)  
[Compare Abilities](#)  
[Compare Detailed Work Activities](#)  
[Compare Tools and Technologies](#)

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

## Knowledge

Similarity of Focus Occupation to Associated Occupation: 79

**Focus Occupation:** Computer Software Engineers, Systems Software (15-1032)  
**Associated Occupation:** Computer and Information Systems Managers (11-3021)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation
Computers and Electronics	8.4	20.0	23.1	> Current knowledge level is likely sufficient
Administration and Management	8.4	15.7	7.7	<< Extensive education and/or training may be required
Customer and Personal Service	11.3	15.7	11.8	<< Extensive education and/or training may be required
Production and Processing	6.0	11.8	6.7	<< Extensive education and/or training may be required
Personnel and Human Resources	5.6	11.2	3.9	<< Extensive education and/or training may be required
Telecommunications	3.9	10.9	8.3	<< Extensive education and/or training may be required
Economics and Accounting	4.4	9.7	3.7	<< Extensive education and/or training may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

## Skills

Similarity of Focus Occupation to Associated Occupation: 64

**Focus Occupation:** Computer Software Engineers, Systems Software (15-1032)  
**Associated Occupation:** Computer and Information Systems Managers (11-3021)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation
Monitoring	9.9	13.5	10.3	<< Extensive development of skills in this area may be required
Systems Evaluation	6.4	12.2	10.7	< A higher skill level may be required
Management of Personnel Resources	6.9	11.1	6.7	<< Extensive development of skills in this area may be required
Systems Analysis	6.5	10.8	10.2	0 Current skill level may be sufficient

Negotiation	6.8	10.2	7.6	<<	Extensive development of skills in this area may be required
Operations Analysis	5.0	9.6	12.0	>	Skill level is likely sufficient
Management of Financial Resources	3.3	8.8	3.2	<<	Extensive development of skills in this area may be required
Management of Material Resources	3.7	8.5	2.9	<<	Extensive development of skills in this area may be required
Programming	2.2	6.9	12.6	>>	Skill level is likely more than sufficient
Technology Design	2.6	5.9	8.1	>>	Skill level is likely more than sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

Abilities		Similarity of Focus Occupation to Associated Occupation: 98			
Focus Occupation: Computer Software Engineers, Systems Software (15-1032) Associated Occupation: Computer and Information Systems Managers (11-3021)					
Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation	
Written Comprehension	11.0	15.1	13.8	0	Current ability level may be sufficient
Written Expression	9.8	13.5	12.3	0	Current ability level may be sufficient
Deductive Reasoning	10.6	13.2	12.6	0	Current ability level may be sufficient
Inductive Reasoning	10.2	13.2	11.8	<	Some improvement in abilities may be required
Information Ordering	9.9	12.3	11.4	0	Current ability level may be sufficient
Fluency of Ideas	7.6	10.1	8.8	<	Some improvement in abilities may be required
Originality	7.6	10.1	9.3	0	Current ability level may be sufficient
Memorization	5.6	7.3	4.8	<<	Extensive improvement in abilities may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common		Similarity of Focus Occupation to Associated Occupation: 89
Focus Occupation: Computer Software Engineers, Systems Software (15-1032) Associated Occupation: Computer and Information Systems Managers (11-3021)		
Work Activities	Exclusivity of Activity	
Confer with management or users	76	
Consult with customers concerning needs	69	
Develop computer performance standards	87	
Evaluate computer system user requests or requirements	81	
Follow data security procedures	77	
Follow data storage procedures	75	
Recommend software or hardware purchases	85	

Revise or correct errors in computer programs, software, or systems	85
Test computer programs or systems	78
Use computer programming language	82
Use project management techniques	47

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

## Tools and Technologies that Both Occupations Have in Common

**Similarity of Focus  
Occupation to Associated  
Occupation: 86**

**Focus Occupation: Computer Software Engineers, Systems Software (15-1032)**  
**Associated Occupation: Computer and Information Systems Managers (11-3021)**

Tools and Technologies	Exclusivity
Business function specific software	1
Computers	1
Content authoring and editing software	1
Data management and query software	1
Development software	4
Electronic and communication measuring and testing instruments	14
Industry specific software	1
Information exchange software	1
Network applications software	1
Network management software	37
Networking software	21
Operating environment software	12
Security and protection software	30
System boards processors interfaces or modules	56
Utility and device driver software	17

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.